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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,938	12/03/2001	William M. Carra	100687.00032	7794

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EXAMINER

CHOI, WILLIAM C

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	10/004,938	CARRA, WILLIAM M.	
	Examiner	Art Unit	
	William C. Choi	2873	

-- Th MAILING DATE of this communication appears on th cov r sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 11-25 have been renumbered 7-21 respectively.

Claim 16 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 15. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 15 and 16 are objected to because of the following informalities: in line 3 of claim 15 and line 2 of claim 16, applicant discloses "**the** plane of its rotation". However, there is no antecedant basis for a "plane of rotation". Therefore, it was assumed applicant meant, "a plane of rotation". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 (and dependent claims 10-21) is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, in line 4, applicant discloses an "output member" which is movable into a first or second position. In lines 7-9, applicant discloses, "the armature" being driven into either positions. It is unclear as to whether applicant is claiming two separate components of the actuator, thereby rendering the claim vague and indefinite. For purposes of examination, it was assumed that the "output member" is the "armature". Therefore, line four would read, "an electrically operable bi-directional actuator, an armature of". Claims 10-21 inherit the rejection from their parent claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Maruyama et al (U.S. 6,100,497).

In regards to claim 9, Maruyama et al discloses an actuator for moving a mechanical shutter between a first position, whereat the shutter blocks the passage of a beam of radiant energy, and a second position, whereat the shutter permits the passage of the beam (column 6, lines 18-32 and 47-57, Figure 3), which comprises: an electrically operable bi-directional actuator (column 6, lines 18-22-25, Figure 3, "44a"), an armature of which is selectively movable into a first position or a second position for carrying the shutter into its first or second positions (column 6, lines 18-22-25, Figure 3, "45a") and would inherently comprise a circuit for selectively, positively forcing and driving the armature into either of its positions, whereat the armature remains unless and until the armature is positively forced and driven into its other position, this being reasonably assumed from Maruyama et al disclosing said apparatus used in robotic automobile welding, which would require precisely controlled circuitry.

Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Hiroshi (JP 57-042003).

In regards to claim 9, Hiroshi discloses an actuator for moving a mechanical shutter between a first position, whereat the shutter blocks the passage of a beam of radiant energy, and a second position, whereat the shutter permits the passage of the beam (Abstract, Figures 5-7, "15"), which comprises: an electrically operable bi-directional actuator (Figure 5, "11"), an armature of which is selectively movable into a first position or a second position for carrying the shutter into its first or second positions (Figures 5-7, "14") and would inherently comprise a circuit for selectively, positively forcing and driving the armature into either of its positions, whereat the armature

remains unless and until the armature is positively forced and driven into its other position, this being reasonably assumed from Hiroshi disclosing said apparatus for use in precisely intercepting a laser beam quickly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-14 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al and further in view of Hamada et al (U.S. 5,097,110).

Regarding claims 10-13, Maruyama et al discloses as set forth above, but does not specifically disclose the limitations of the current signals disclosed in these claims. However, the limitations as disclosed, are merely operational functions of the circuitry, which are well known in the art and would have been obvious to one of ordinary skill in the art at the time the invention was made since the apparatus of Maruyama is functionally equivalent to that which is claimed.

Regarding claim 14, Maruyama et al discloses wherein the shutter is an efficient reflector at the wavelength of the radiant energy and in the first position of the shutter, the radiant energy is blocked and reflected by the shutter away from the path taken to reach the shutter (column 6, lines 22-27, Figure 3, "46a"), but does not specifically disclose wherein the shutter is a dielectric member. Within the field of laser beam

welding, Hamada et al teaches that it is desirable for laser reflecting mirrors, used in welding applications, to comprise dielectric layers for the purpose of maintaining high reflectivity without necessitating a cooling facility (Abstract, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the shutter of Maruyama et al to be a dielectric member since Hamada et al teaches that it is desirable for laser reflecting mirrors, used in welding applications, to comprise dielectric layers for the purpose of maintaining high reflectivity without necessitating a cooling facility.

Regarding claim 19, Maruyama further discloses wherein the actuator includes an efficient absorber at the wavelength of the radiant energy, the absorber being positioned relative to the reflector in the first position thereof so that the reflector directs the reflected beam onto the absorber (column 6, lines 22-32, Figure 3, "51a").

Regarding claims 20 and 21, Maruyama et al discloses as set forth above, but does not specifically disclose the computer as claimed. However, it is well known in the art to use computers for the precise control of actuators, especially in the field of robot facilitated welding. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of Maruyama to include a computer since it is well known in the art to use computers for the precise control of actuators, especially in the field of robot facilitated welding.

Claims 10-14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi and further in view of Hamada et al.

Regarding claims 10-13, Hiroshi discloses as set forth above, but does not specifically disclose the limitations of the current signals disclosed in these claims. However, the limitations as disclosed, are merely operational functions of the circuitry, which are well known in the art and would have been obvious to one of ordinary skill in the art at the time the invention was made since the apparatus of Hiroshi is functionally equivalent to that which is claimed.

Regarding claim 14, Hiroshi discloses wherein the shutter is an efficient reflector at the wavelength of the radiant energy and in the first position of the shutter, the radiant energy is blocked and reflected by the shutter away from the path taken to reach the shutter (Figures 6 and 7, "L" & "15), but does not specifically disclose wherein the shutter is a dielectric member. Within the field of laser beam reflection mirrors, Hamada et al teaches that it is desirable for laser reflecting mirrors to comprise dielectric layers for the purpose of maintaining high reflectivity without necessitating a cooling facility (Abstract, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the shutter of Hiroshi to be a dielectric member since Hamada et al teaches that it is desirable for laser reflecting mirrors, used in welding applications, to comprise dielectric layers for the purpose of maintaining high reflectivity without necessitating a cooling facility.

Regarding claims 17 and 18, Hiroshi further discloses wherein the reflector is convex, the type and plane of rotation of the output member being selected so that in its

first position, the reflector intercepts the path of the radiant energy and reflects it angularly away from the path thereof (Figures 6 and 7, "15).

Allowable Subject Matter

Claims 1-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 1-7: a fast mechanical shutter for selectively intercepting and deflecting, and permitting passage of high-power radiant emissions as claimed, specifically comprising sensing facilities for measuring the temperature of the actuator for producing an error signal if the temperature exceeds a predetermined limit and a facility for producing a fault signal in response to receipt of the error signal.

The prior art fails to teach a combination of all the claimed features as presented in claim 8: a fast mechanical shutter for selectively intercepting and deflecting, and permitting passage of high-power radiant emissions as claimed, specifically comprising sensing facilities for measuring the temperature of the actuator for producing an error signal if the temperature exceeds a predetermined limit and a facility for producing a fault signal in response to receipt of the error signal.

Claim 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

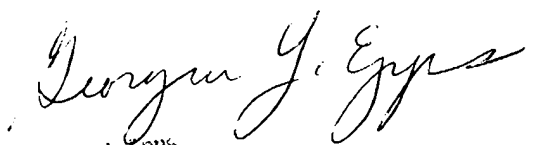
The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claim 15: an actuator as claimed, specifically wherein the reflector is a planar member which is not coplanar or parallel with a plane of its rotation by the armature, which plane of rotation is generally normal to the path of the radiant energy.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (703) 305-3100. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (703) 308-4883. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

William Choi
Patent Examiner
Art Unit 2873
October 16, 2003


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800